

Technical training.
Product information.

E82 M Complete Vehicle



BMW Service

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Technical Training

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General information

Symbols used

The following symbol is used in this document to facilitate better comprehension or to draw attention to very important information:



Contains important safety information and information that needs to be observed strictly in order to guarantee the smooth operation of the system.

Information status and national-market versions

BMW Group vehicles meet the requirements of the highest safety and quality standards. Changes in requirements for environmental protection, customer benefits and design render necessary continuous development of systems and components. Consequently, there may be discrepancies between the contents of this document and the vehicles available in the training course.

This document basically relates to the European version of left hand drive vehicles. Some operating elements or components are arranged differently in right-hand drive vehicles than shown in the graphics in this document. Further differences may arise as the result of the equipment specification in specific markets or countries.

Additional sources of information

Further information on the individual topics can be found in the following:

- the Owner's Handbook/Supplementary Owner's Handbook
- Integrated Service Technical Application.

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The information contained in this document forms an integral part of the technical training provided by the BMW Group and is intended for its course trainers and participants. Refer to the latest relevant information systems of the BMW Group for any changes/additions to the Technical Data.

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E82 M Complete Vehicle

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E82 M Complete Vehicle

1. Introduction

For customers with especially high expectations of the performance characteristics of their BMW 1 Series, BMW M GmbH now offers an M Coupe based on the BMW E82 135i Coupe with an even more powerful engine and a modified BMW E9x M3 chassis and suspension set-up including the M variable differential lock. The modifications are designed for a spirited driving experience and encompass the powertrain, chassis and suspension as well as the body and interior.

Owners of the BMW E82 M Coupe will benefit from the company's extensive knowledge in the development and production of M vehicles. In terms of the concept, parallels with the BMW E30 M3 cannot be denied. Sports visual styling, rigorous use of lightweight design and a powerful, performance-oriented engine.

Market launch of the BMW E82 M Coupe takes place in May 2011. This vehicle will be produced at the Leipzig plant in Germany. .

1.1. M-specific exterior equipment

To optimize the visual styling, the airflow and the downforce, the BMW E82 M Coupe has a new front and rear bumper cover, rocker panels and M door mirrors.

The headlights are the same as the E82 LCI model.



TG10-1726

E82 M Coupe front three-quarter view

The E82 M Coupe is offered in the new exterior color, Valencia orange metallic. It will also be available in Alpine white and Black sapphire metallic.

The visual distinctions from the BMW 135i include not only the exclusive exterior color but also the M front bumper, the flared wheel arches, the M3 door mirrors on 1 Series pedestal mounts and the 19-inch M wheels with different tire sizes front and rear.

The front fender is new and has been widened to accommodate the BMW E9x M3 suspension and finished off with an M gill.

E82 M Complete Vehicle

1. Introduction



E82 M Coupe M gill



E82 M Coupe front view

TG10-1723

E82 M Complete Vehicle

1. Introduction



TG10-1724

E82 M Coupe rear view

The rear fenders have also been widened to accommodate the BMW E9x M3 suspension.

The rear lights are also the same as the E82 LCI. The shaping of the underbody and the rear silencer have been aerodynamically optimized.

E82 M Complete Vehicle

1. Introduction



TG10-1727

E82 M Coupe rear three-quarter view

1.2. M-specific interior equipment

The interior of the BMW E82 M Coupe reflects the sports-style ambience typical of the M models. The M side sill finishers catch the attention as soon as the door is opened.



TG10-1770

E82 M Coupe door sill

E82 M Complete Vehicle

1. Introduction

The BMW E82 M Coupe is fitted with the E82 sports seats. Finished in Black Boston leather with contrasting orange seams, they strike a distinctive visual note.



E82 M Coupe seat

The cockpit also incorporates all the typical M components.

That includes the M leather steering wheel with M insignia and M button for selecting even more high-performance engine settings and the M "short shifter" gear lever with M badge for fast gear changing.



E82 M Coupe M button on steering wheel

The gear lever and Parking brake are wrapped with Alcantara anthracite fabric with contrasting orange seams.

E82 M Complete Vehicle

1. Introduction

In addition, the instrument cluster cowl, the instrument panel trim and the door trim panels have contrasting orange seams.



E82 M Coupe contrasting seam

The M instrument cluster with red gauge needles, dark grey instrument faces with light grey scale markings, white illumination, M badge, MDM M Dynamic Mode (top) and SPORT insignia (bottom of LCD display) complete the M visual styling.



E82 M Coupe instrument cluster

E82 M Complete Vehicle

2. Overview

2.1. Concept highlights

2.1.1. Engine/gearbox

- More power and torque than the BMW 135i
- Cooling system with additional coolant/air heat exchanger and more powerful electric fan
- Second engine data map selectable by means of M button on steering wheel
- M sound tuning
- 6-speed manual gearbox
- 4-pipe rear muffler with chrome tips
- Running-in check at 1,200 miles.

2.1.2. Chassis/suspension/wheels & tires

- M suspension strut brace
- E82 front sub-frame, with fully modified BMW E9x M3 chassis and suspension
- Servotronic steering from BMW E9x M3 with modified characteristic
- Rear axle final drive with variable M differential lock from BMW E9x M3.
- Brakes and control systems from BMW E9x M3
- Wheels/tires from BMW E9x M3 (19" with different sizes front/rear) non runflat
- M-mobility kit in trunk

2.1.3. Lightweight design

- Reduced-weight dual-mass flywheel
- Manual gearbox only
- Less extensive use of sound insulation
- M Compound brake discs
- Tires without run-flat capability
- AGM battery.

2.1.4. Controls

- M leather steering wheel with multifunction button and M button (carried over from BMW E9x M3)
- M "short shifter" gear lever
- DSC OFF button with skid symbol and "OFF" inscription

E82 M Complete Vehicle

2. Overview

2.1.5. Variants

- Right and left-hand drive
- Only available in Europe and US markets
- Manual 6 speed gearbox only

2.1.6. Interior equipment

- M door sill plate, M footrest
- M leather steering wheel with multifunction button and M button
- E82 sports seats in black Boston leather with contrasting orange seam and M badge on headrest. Contrasting seams in back as well
- Gear lever and parking brake lever covers, instrument panel cowl, interior trim finishers and door trim panels in Alcantara anthracite
- Contrasting orange seams on gear lever and parking brake lever covers, instrument panel cowl, interior trim finishers and door trim panels
- Individual anthracite headliner
- M badge on instrument cluster, gear lever and steering wheel
- Instrument cluster with visual differentiation: red gauge needles, grey-backed instrument faces, white illumination, MDM and SPORTS insignia

2.1.7. Exterior equipment

- New front bumper cover
- New, widened front fender with M gill/indicator repeater
- New rocker panel
- Door mirrors are taken from BMW E9x M3 but adapted to E82 mounting
- Widened rear fenders
- New rear bumper cover
- Three colors: Alpine white , Sapphire black metallic and the new exterior color, Valencia orange.

2.1.8. Standard/optional equipment

Standard equipment compared with 135i

- Servotronic
- M steering wheel with M seam (specially for M vehicles)
- Sports seats

E82 M Complete Vehicle

2. Overview

- Individual anthracite headliner
- Alcantara anthracite trim
- Automatic climate control
- 19 inch wheels

Option packages

ZCV Convenience Package includes:

- SA 302 Anti-theft alarm
- SA 322 Comfort access
- SA 507 Park distance control (rear only)
- SA 609 Navigation

ZPP Premium Package includes:

- SA 430 Auto-dimming mirrors
- SA 431 Auto-dimming rearview mirror
- SA459 Power front seats
- SA 488 Lumbar support for driver/front passenger
- SA 563 Ambiance lighting
- SA 639 BMW assist with Bluetooth
- SA 6FL iPod and USB adapter

Options

- SA 494 Heated front seats
- SA 639 BMW assist with Bluetooth
- SA 655 Satellite radio
- SA 688 Harmon Kardon surround sound
- SA 6FL iPod and USB adapter
- SA 6NR BMW Apps

E82 M Complete Vehicle

3. Technical Data

| Description | | BMW E82 M Coupe | BMW E82 135i | BMW E92 M3 |
|--|---------------------|---|-------------------------------|---------------------|
| Year | | From 2011 | 2007 on | 2007 on |
| Length | [mm] | 4379 | 4360 | 4615 |
| Width | [mm] | 1803 | 1748 | 1804 |
| Height | [mm] | 1420 | 1408 | 1418 |
| Seats | | 4 | 4 | 4 |
| Engine type | | Inline 6 N54B30T0 | Inline 6 N55B30M0 | V8 S65B4000 |
| Displacement | [cm ³] | 2979 | 2979 | 3999 |
| Bore | [mm] | 84 | 84 | 92 |
| Stroke | [mm] | 89.6 | 89.6 | 75.2 |
| Power output at engine speed | [kW (bhp)] | 250 (335) | 225 (300) | 309 (414) |
| Maximum speed | [rpm] | 5900 | 5800 | 8300 |
| | [rpm] | 7000 | 7000 | 8400 |
| Power output per liter | [kW/bhp per liter] | 84/114 | 75.5/102.7 | 77.3/105 |
| Torque at engine speed | [Nm] (ft lbs) [rpm] | 450 (332) 1500-4500 (500Nm/369 ft lbs with overboost) | 400 (300) 1200-5000 | 400 (300) 3900 |
| CO ₂ emissions | [g/km] | 224 | 198 (N54 220) | 290 |
| Exhaust emissions compliance | | ULEV II no | ULEV II no | ULEV II yes |
| Automatic Start/ Stop | | | | |
| Manual gearbox (Code letter and additional info) | | GS6-45BZ (K uncooled) | GS6-45BZ (K [N54 G] uncooled) | GS6-53BZ (G cooled) |
| Final drive ratio | [:1] | 3.154 | 3.08 | 3.85 |
| Variable M differential lock | | yes | no | yes |
| Curb weight | [kg] lbs | [1524] 3362 | [1530] 3373 | [1680] 3704 |
| Permissible gross weight | [kg] | 1900 | 1895 | 2080 |
| DIN weight-to-power ratio | [kg x kW/bhp] | 5.98/4.4 | 6.5/4.75 | 5.2/3.8 |
| Acceleration 0-60-mph | [s] | 4.7 | 5.4 | 4.7 |
| 1000 m standing start | [s] | 23.7 | 24.5 | 23.3 |

E82 M Complete Vehicle

3. Technical Data

| Description | | BMW E82 M Coupe | BMW E82 135i | BMW E92 M3 |
|---|-------|--|---|--|
| V _{max} ** | [kph] | 250 | 250 | 250/280*** |
| Chassis and suspension | | Based on E9x M3, front subframe carried over from E82, no stiffening plate | E82 135i | E92 M3 |
| Steering Overall ratio (averaged) | | Rack and pinion with hydraulic power assistance. (variable) 12.5 | Rack and pinion with hydraulic power assistance. 16 | Rack and pinion with hydraulic power assistance. (variable) 12.5 |
| Brake discs, front Diameter x Thickness | [mm] | 360 x 30 | 338 x 26 | 360 x 30 |
| Brake discs, rear Diameter x Thickness | [mm] | 350 x 24 | 324 x 22 | 350 x 24 |
| Brake caliper type, front | | Single-piston floating caliper | 6-piston fixed caliper | Single-piston floating caliper |
| Brake caliper type, rear | | Single-piston floating caliper | 2-piston fixed caliper | Single-piston floating caliper |
| Standard tires, front | | 245/35 ZR19 | 215/40 R18 RSC | 245/40 ZR18 |
| Standard tires, rear | | 265/35 ZR19 | 245/35 R18 RSC | 265/40 ZR18 |
| Standard wheels, front | | 9J x 19 light alloy | 7.5J x 18 light alloy | 8.5J x 18 light alloy |
| Standard wheels, rear | | 10J x 19 light alloy | 8.5J x 18 light alloy | 9.5J x 18 light alloy |
| Wheelbase | | [mm] 2660 | 2660 | 2761 |
| Track width front/rear | | [mm] 1541/1541 | 1470/1497 | 1538/1539 |

** Electronically limited *** Optional updated Vmax.

E82 M Complete Vehicle

4. Special technical features

4.1. N54B30T0 engine

The BMW E82 M Coupe uses the 250 kW/335 bhp N54B30T0 engine familiar from the BMW Z4 sDrive35is. That puts the increase in power compared with the BMW 135i at 25 kW/35 bhp. The engine in the BMW E82 M Coupe is visually distinguished by the inscription "Powered by BMW M" on the engine cover.



E82 M Coupe N54B30T0 engine

The engine management (DME) used is once again the MSD81.

The engine maps have been configured for even greater responsiveness and higher-performance power progression.

A weight-optimized 11.4 kg dual-mass flywheel weight is used (BMW 135i/Z4 sDrive35is weighs 12.8 kg).



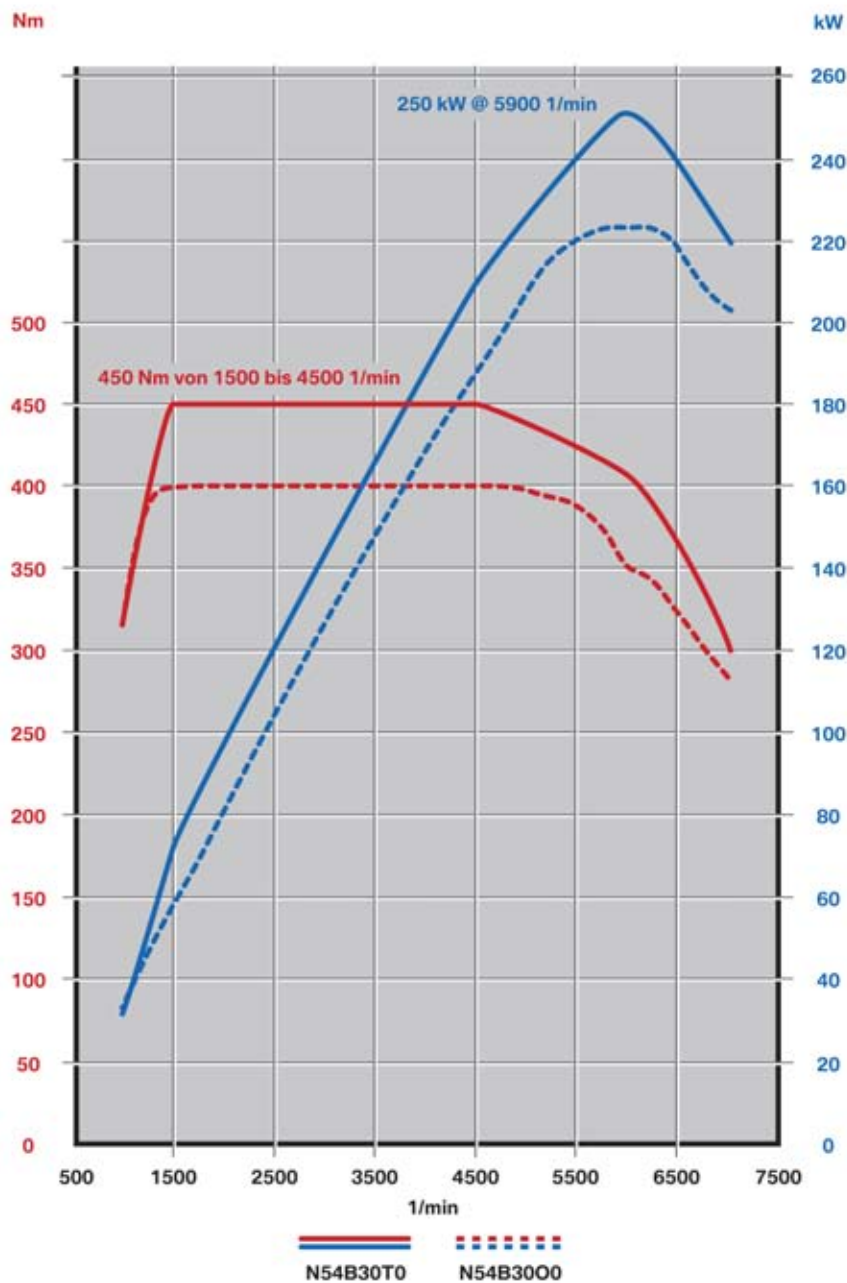
Due to the weight-optimized dual-mass flywheel, slight rattling noises may be discernible under unfavorable conditions such as high outside temperatures, refer to the owners manual for more information.

The clutch is identical the one used on the BMW 135i with the 500Nm (369 ft lbs) torque transmission.

E82 M Complete Vehicle

4. Special technical features

4.1.1. Power and torque graph



E82 M Coupe N54B30T0 engine power and torque graph

TO10-1754

E82 M Complete Vehicle

4. Special technical features

4.1.2. M Engine dynamics control

As on the BMW Z4 sDrive35is, the maximum torque of 450Nm/295 ft lbs is briefly raised (for five seconds max.) to 500Nm/369 ft lbs by the overboost function. The precondition for the overboost function is a demand for acceleration of more than 80%. The increased torque is available from as low as 1,500 rpm right through to 4,500 rpm. That means that the torque gain can be as much as 100 Nm compared to the BMW 135i .

Although in the first two gears the loss of traction limits the amount of power and torque that can be transmitted, more than 450Nm/295 ft lbs can be delivered from third gear on, and 500Nm/369 ft lbs from fourth gear on. When the DSC is active and maximum acceleration is called for, forward thrust is limited in first, second and third gears in favor of handling stability. Configuration is based on the optimum traction.

The M button on the steering wheel is an even more high-performance engine map. This function is comparable with the M Engine dynamics control Sports mode on the BMW E9x M3. On that model, it is activated by the Power button on the center console. When M Engine dynamics control Sports mode is active, the DSC modulation may be called into action more frequently.



E82 M Coupe M button on steering wheel

On the instrument cluster, the M Engine dynamics control Sports mode is indicated by the word SPORT on the display.



E82 M Coupe M (Sports) mode indication

The effect of the M Engine dynamics control Sports mode on the BMW E82 M Coupe is to further increase the responsiveness of the acceleration compared with the already very direct response of the basic setting (conversion of pedal sensor position to power delivery).

In addition, control of the turbocharger wastegate valves is programmed for maximum turbocharger speed in the lower power band for enhanced responsiveness. This produces a further gain in dynamic response when accelerating from a constant speed and adopting a positive driving style.

E82 M Complete Vehicle

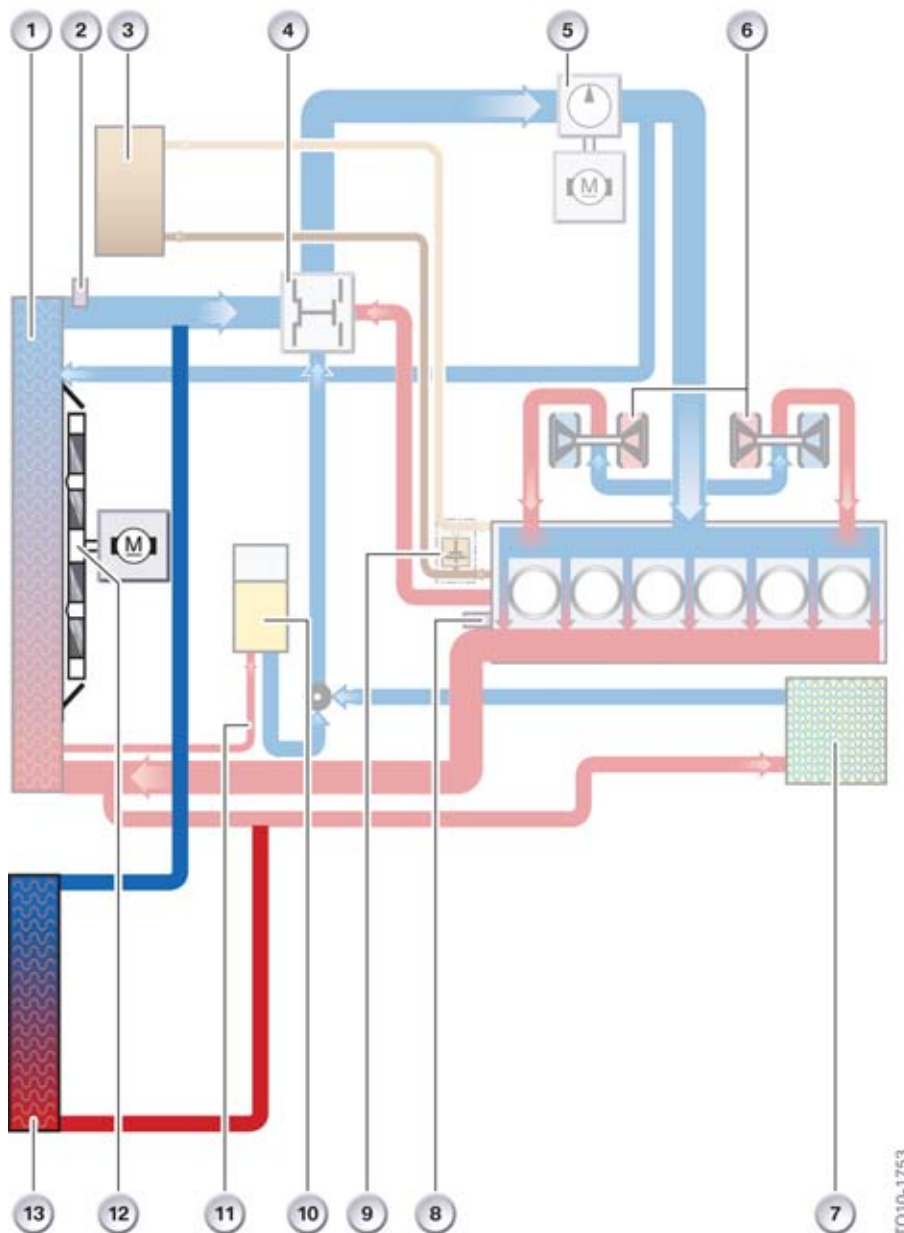
4. Special technical features

In normally aspirated mode the wastegate valve control is configured as on the BMW Z4 sDrive35is.

The Blow-off valves are controlled directly by the intake manifold vacuum as on the N54 engine series (control starts at 150 mbar, open at 300 mbar).

4.1.3. Cooling system

An extra coolant to air heat exchanger is fitted behind the front left side of the bumper cover (taken from the E82 performance package). Furthermore, an 850 W electric fan is used as on the BMW E9x M3, (600 W is used on BMW 135i/Z4 sDrive35is).



E82 M Coupe N54B30T0 engine cooling system

E82 M Complete Vehicle

4. Special technical features

| Index | Explanation |
|-------|--|
| 1 | Radiator (coolant to air heat exchanger) |
| 2 | Radiator outlet temperature sensor |
| 3 | Engine oil cooler (oil to air heat exchanger) in right air duct |
| 4 | Data-map thermostat |
| 5 | Electric coolant pump |
| 6 | Turbocharger |
| 7 | Heater core |
| 8 | Cylinder head outlet temperature sensor |
| 9 | Engine oil cooler thermostat |
| 10 | Expansion tank |
| 11 | Bleed pipe |
| 12 | Large 850-watt fan |
| 13 | Additional radiator (coolant to air heat exchanger) in left air duct |

4.1.4. Exhaust system

The design of the primary catalytic converters is the same as for the N54B30T0 on the BMW Z4 sDrive35is except that the flange positioning is different. The catalytic converters are as on the 135i. The front muffler has been modified for a more sports-type sound and optimized exhaust flow. The rear muffler is a new design with four chrome tail pipes without controlled flaps.

4.1.5. Service

As always for M models, a running-in check is required at 2,000 km/1,200 miles.

The running-in check includes engine oil change, manual gearbox and rear differential.

Refer to SI B00 01 10 dated May 2011



Note: The oil level indicator is not M-specific but identical to those for the BMW 135i. .

4.2. K manual gearbox GS6-45BZ

The BMW E82 M Coupe uses the GS6-45BZ manual gearbox referred to for short as the K gearbox.

E82 M Complete Vehicle

4. Special technical features

Highlights

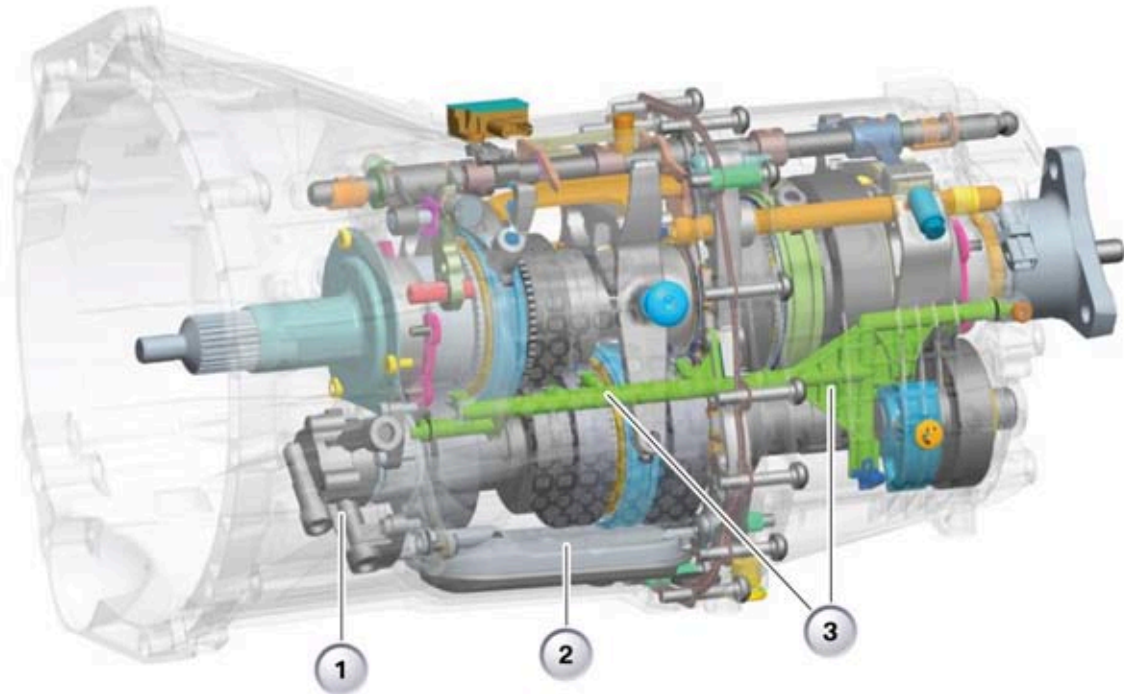
- Six-speed gearbox with optimized transmission ratios
- Intermediate bearings
- Dry-sump lubrication
- Synchronmeshes with carbon friction linings
- Oil change intervals as for BMW E9x M3 manual gearbox, i.e. including at 2,000 km/1,200 miles running-in check

High-precision shifting achieved by:

- The use of a newly developed carbon friction lining on the synchronmesh units
- A newly developed and very low-friction shift mechanism
- The low drag losses of the gear train
- Limiting excessive shift travel

The gearbox has been tested and approved for a maximum torque of 500 Nm for the E82. Testing was based on the permissible gross weight and the maximum possible forward thrust.

To keep the drag losses low, dry-sump lubrication is used. Compared with conventional immersion lubrication, this prevents the swash losses from the movement of the gear train in the sump oil. Further reduction of losses is achieved by the friction-optimized radial shaft seals.



“K” 6 speed manual transmission (GS6-45BZ)

E82 M Complete Vehicle

4. Special technical features

| Index | Explanation |
|-------|-------------------------------------|
| 1 | Oil pump with pressure relief valve |
| 2 | Oil filter |
| 3 | Oil injector pipe |

Conventional manual transmissions normally use splash lubrication. During this process, the gears on the countershaft dip into the transmission oil and distribute it throughout the transmission in a disorderly manner as the gear set rotates. Often, additional equipment such as oil partition plates or oil grooves are required to bring the oil to the gears, the bearings or to the synchronizers.

The K transmission with dry sump type lubrication system was used for the first time on the BMW 5 Series F10.

4.2.1. Gearbox technical data

| | | K manual gearbox GS6-45BZ |
|---|------|--------------------------------------|
| Present engine applications on 1 Series | | N55B30M0/N54B30T0 |
| Maximum drive torque | [Nm] | 470 (500 approved for E82) |
| Weight inc. oil | [kg] | 43.3 |
| Gearbox length | [mm] | 646 |
| Transmission ratio 1st gear | | 4.110 |
| Transmission ratio 2nd gear | | 2.315 |
| Transmission ratio 3rd gear | | 1.542 |
| Transmission ratio 4th gear | | 1.179 |
| Transmission ratio 5th gear | | 1.000 |
| Transmission ratio 6th gear | | 0.846 |
| Transmission ratio reverse gear | | 3.727 |

More information on the K manual gearbox can be found in ST1002 F10 Complete Vehicle “power-train” training material available on TIS and ICP.

E82 M Complete Vehicle

4. Special technical features

4.3. Driveshaft/Rear axle final drive



E82 M Coupe drive train

TA10-1756

4.3.1. Driveshaft

The front section of the driveshaft is based on that of the BMW E82 with N55 engine and the rear section on that of the BMW E9x M3 with its length modified. The driveshaft is hollow and for optimum crash characteristics has a graduated profile and a flexible disc coupling at the gearbox end. As typical on M models, the driveshaft attaches to the differential by means of a constant velocity joint.



The driveshaft center bearing can be fitted facing two ways, as on the BMW E9x M3. It is important that the side marked "TOP" is fitted facing the body.



E82 M Coupe driveshaft center bearing

TA10-1762

E82 M Complete Vehicle

4. Special technical features

4.3.2. Rear axle final drive

The BMW E82 M Coupe has the rear differential unit from the BMW E9x M3 and is thus also equipped with the "M variable differential lock" including differential enhancements developed over three generations of the unit.

The size of the ring gear is 215 mm and the final drive ratio is 3.15:1.

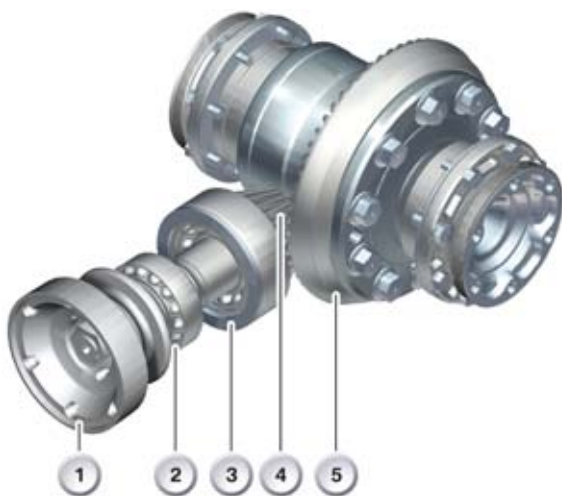


E82 M Coupe rear differential



As M differentials continue to be the subject of complaints in this regard, the following note is worth repeating:

For reasons inherent in differential function, the left and right differential output shafts and flanges to which the half-shafts are attached are different lengths inside the differential. As a result, when they are not under load, there is a noticeably different, design-related amount of vertical play in the two flanges. This does not impair the function and is not a justifiable reason for complaint. The larger amount of play on one side is present on all models with the M variable differential lock and may, depending on the version and model, affect either the left or the right flange.



E82 M Coupe rear differential components

E82 M Complete Vehicle

4. Special technical features

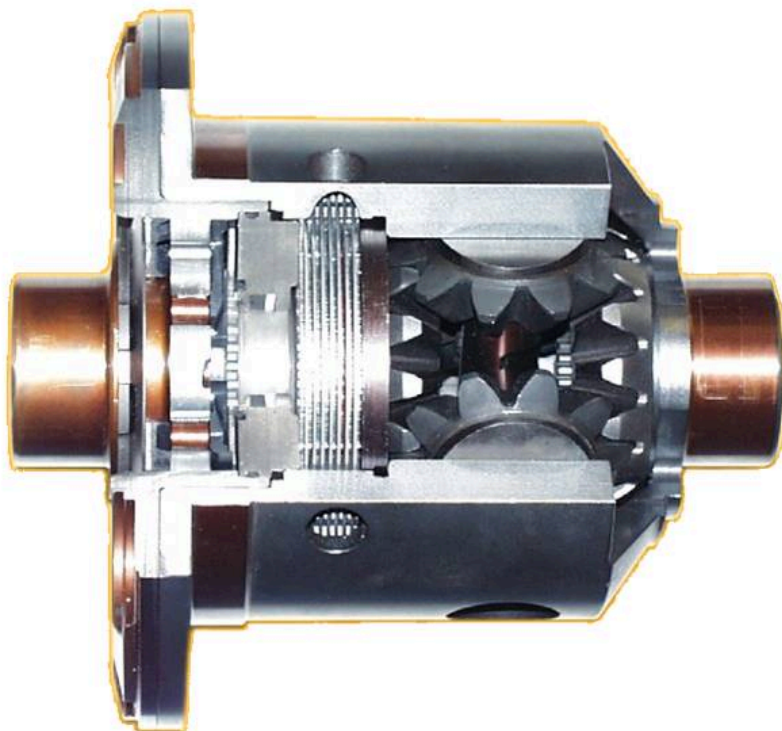
| Index | Explanation |
|-------|---|
| 1 | Driveshaft flange |
| 2 | Front double angular-contact ball bearing |
| 3 | Rear double angular-contact ball bearing |
| 4 | Pinion |
| 5 | Ring gear |

The pinion shaft bearings have been constructed as friction-optimized double angular-contact ball bearings since the BMW E9x M3. The differential housing has been modified to accept the double angular-contact ball bearings. The size 215 differential gearing (ring gear diameter 215 mm) has been optimized for low temperature and noise generation. A reduced-friction gear-tooth design is used.

M variable differential lock

This unique M locking differential design was first used on the BMW E46 M3, then on the BMW E6x M5/M6 and the BMW E9x M3. The way it operates is described in ST041 E46 M3 training material.

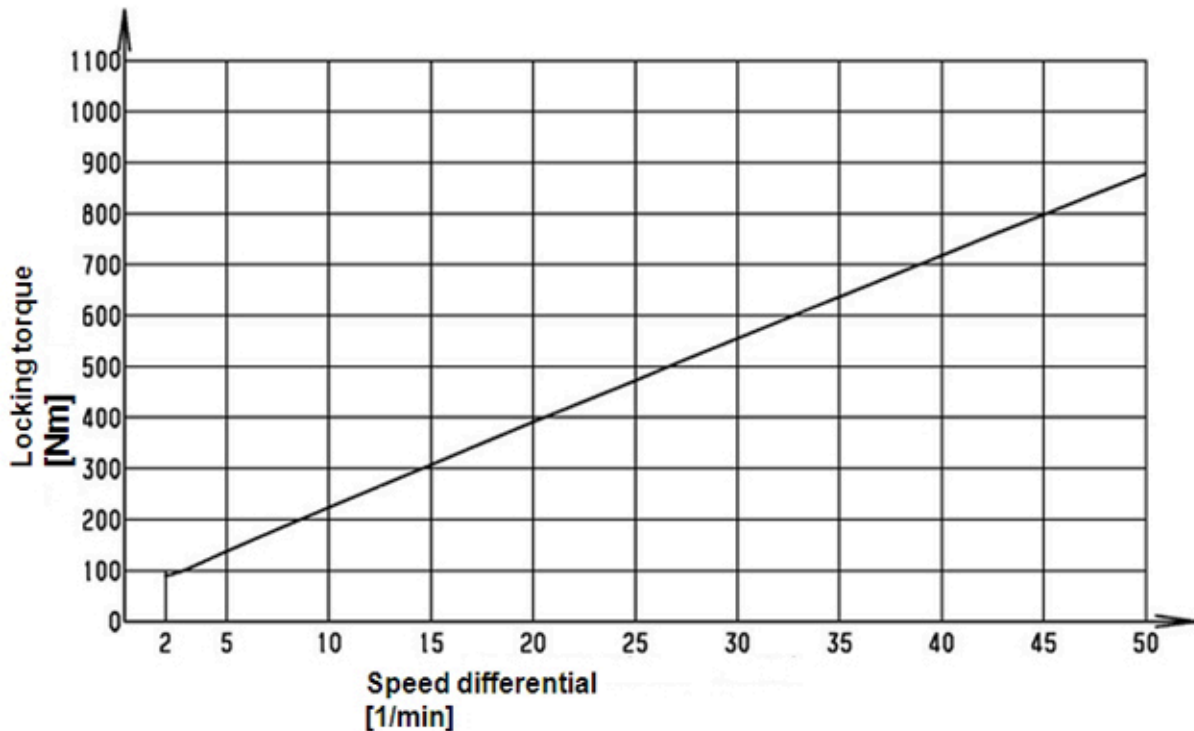
The function of the M variable differential lock enables the BMW E82 M Coupe to obtain optimum traction at any engine speed and in any driving situation.



M variable differential cutaway view

E82 M Complete Vehicle

4. Special technical features



Graphic shows locking torque depending on differential speed

Half-shafts

The half-shafts have been carried over unchanged from the BMW E9x M3.

4.4. M chassis and suspension

In order to ensure controlled handling dynamics, the BMW E82 M Coupe benefits from almost the entire BMW E9x M3 chassis and suspension. The only differences are the front subframe carried over from the BMW E82 135i and the absence of the stiffening plate (M3 has stiffening plate).

The M suspension strut brace (stronger strut mounting attachment than 135i) familiar from the M3 is also used. The length of the braces is modified.

E82 M Complete Vehicle

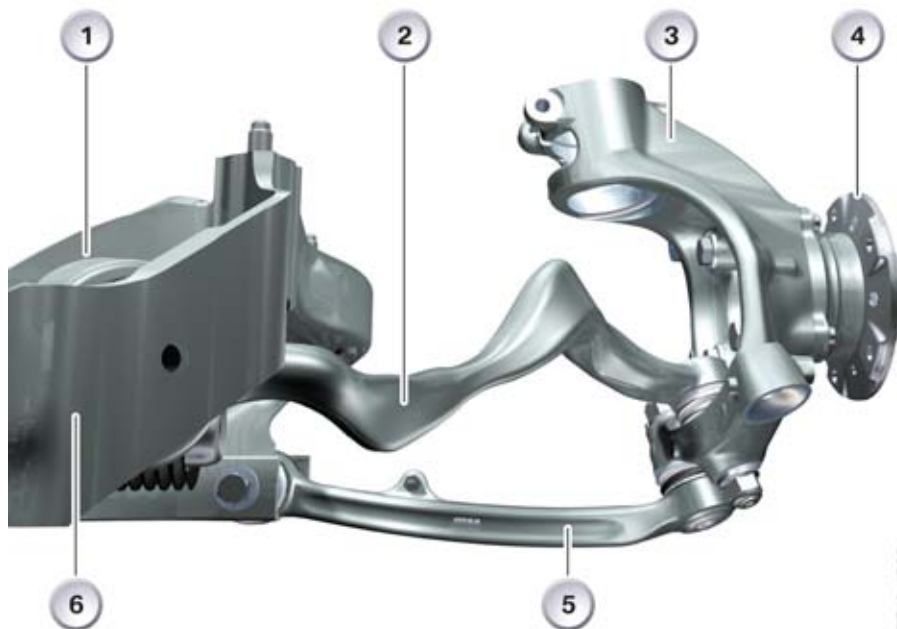
4. Special technical features

4.4.1. Twin-arm McPherson strut front suspension



TF10-1751

E82 M Coupe complete front suspension assembly



TF10-1735

E82 M Coupe front suspension components

E82 M Complete Vehicle

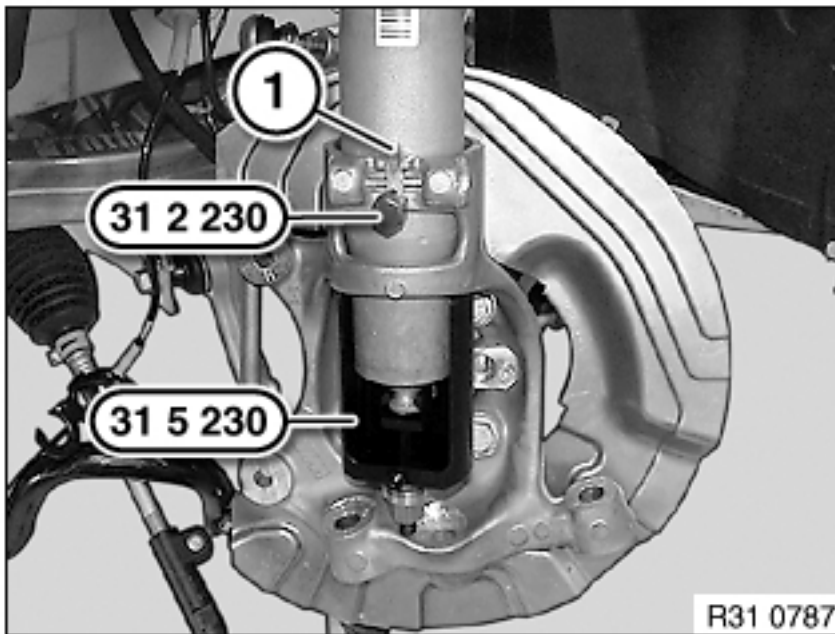
4. Special technical features

| Index | Explanation |
|-------|--|
| 1 | M-specific rubber mount for trailing arm |
| 2 | Trailing arm (standard E9x) |
| 3 | M hub carrier (aluminium alloy) |
| 4 | M hub (as M3/M5/M6) |
| 5 | M transverse link (forged aluminium alloy/two ball joints) |
| 6 | E82 front subframe |

On the standard E9x, the front spring strut is a parallel design and is held only by the clamping force of the mount.

The spring strut on the E82 M Coupe/E9x M3 has a taper at its lower end that locates firmly in the hub carrier.

When installing the M spring strut it is pulled into the lower taper by a special tool.

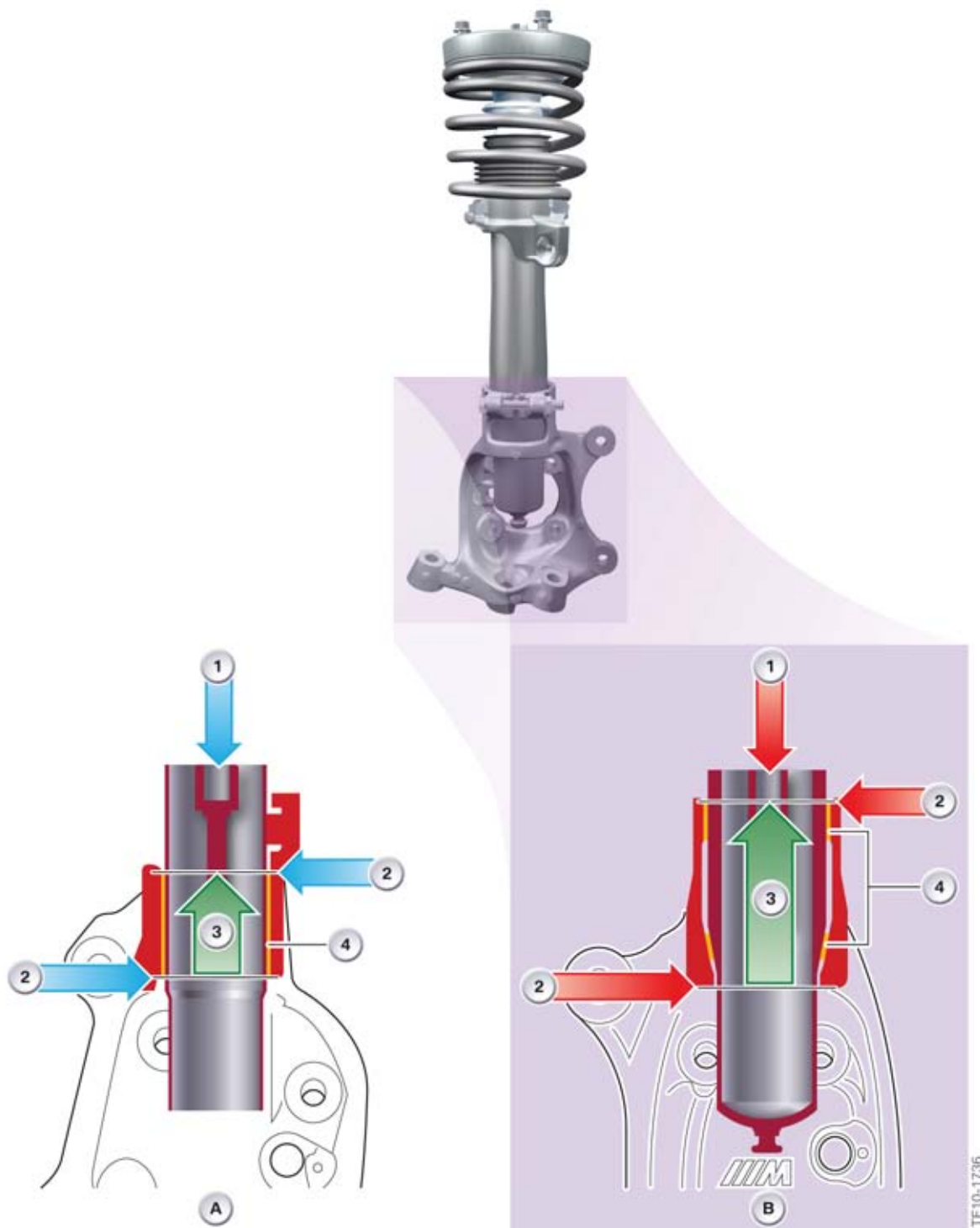


E82 M Coupe front suspension special tools

| Index | Explanation |
|----------|---|
| 1 | M-strut |
| 31 2 230 | Special tool for expanding M hub carrier |
| 31 5 230 | Special tool for pulling strut into M hub carrier |

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4. Special technical features



E82 M Coupe/E9x M3 spring strut attachment to hub carrier compared to standard E9x

E82 M Complete Vehicle

4. Special technical features

| Index | Explanation |
|----------|--|
| A | Illustration of spring strut attachment on standard E9x |
| 1 | Vertical force (Z-axis) |
| 2 | Upper and lower limit of lateral vertical force support (X and Y-axes) |
| 3 | Clamping length 52 mm parallel fit |
| 4 | Parallel mount |
| B | Illustration of spring strut attachment on E82 M Coupe/E9x M3 |
| 1 | Vertical force (Z-axis) |
| 2 | Upper and lower limit of lateral vertical force support (X and Y-axes) |
| 3 | Clamping length 76 mm with parallel fit at top and taper fit at bottom |
| 4 | Cylindrical upper and tapered lower mount |



Note: The fitting and removal procedure as described in the repair instructions must always be followed.

4.4.2. Steering

The hydraulically assisted rack-and-pinion steering has been carried over unchanged from the BMW E9x M3. With an average overall ratio for the variable gearing of 12.5:1 it is direct as a sports model (16:1 on 135i). The power assistance is controlled by the Junction Box control unit via the Servotronic valve according to a set sports characteristic. Active steering is not offered.



E82 M Coupe steering components

E82 M Complete Vehicle

4. Special technical features

| Index | Explanation |
|-------|---------------------------|
| 1 | Steering column |
| 2 | Steering rack housing |
| 3 | Hydraulic fluid cooler |
| 4 | Power steering pump |
| 5 | Hydraulic fluid reservoir |

4.4.3. Five-link rear suspension

The rear suspension design has been carried over unchanged from the BMW E9x M3.

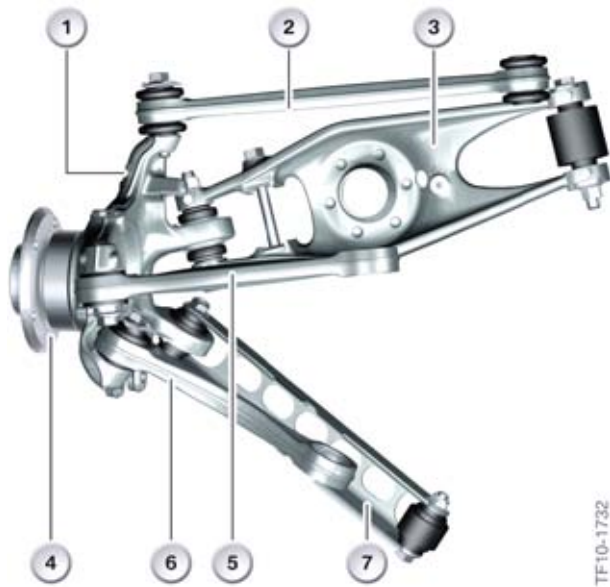


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E82 M Coupe complete rear suspension assembly

E82 M Complete Vehicle

4. Special technical features



E82 M Coupe rear suspension components

| Index | Explanation |
|-------|--|
| 1 | M hub carrier |
| 2 | M track control arm (forged aluminium alloy/two ball joints) |
| 3 | M camber control arm (forged aluminium alloy) |
| 4 | M hub (as M3/M5/M6) |
| 5 | M transverse link (forged aluminium alloy/single ball joint) |
| 6 | M control arm (forged aluminium alloy/single ball joint) |
| 7 | Semi-trailing arm (standard E9x) |

4.4.4. M Dynamic Mode

An M-specific configuration of the DSC dynamic stability control takes account of the greater dynamic handling potential of the BMW E82 M Coupe. That includes the M Dynamic Mode, MDM, which represents an M-specifically adapted DTC dynamic traction control function with modified modulation thresholds. It enables even greater linear and lateral acceleration with limited stability modulation for sports handling. Only at the absolute limit of stability does the system intervene by reducing engine power and individually operating the brakes to maintain stability.

M Dynamic Mode is activated by briefly pressing the DSC OFF button between the center air vents in the instrument panel.

E82 M Complete Vehicle

4. Special technical features



E82 M Coupe DSC OFF button (1) and M Dynamic Mode indicator

It is indicated by the inscription MDM together with the DSC OFF symbol on the instrument cluster. Pressing and holding the button for > 3 seconds completely deactivates the DSC. The MDM light then goes out while the DSC OFF symbol remains lit.

The braking system on the BMW E82 M Coupe is the same as on the BMW E9x M3. As typical on M models, the brake disc is centred by three locating pins (for dimensions see technical data). As distinct from the current BMW M models, only the left front and left rear wheels are fitted with brake pad wear sensors (typical on M models is front left and right and rear right).

Optimum transmission of the different acceleration torque and braking torque levels is ensured by the different tire sizes front and back fitted on 19-inch, double-spoke design M light alloy wheels (styling 359 M) from the BMW M3 Competition package (for dimensions see technical data).



E82 M Coupe wheel and brake disc

E82 M Complete Vehicle

5. Service information

5.1. N54B30T0 engine



Due to the weight-optimized dual-mass flywheel, slight rattling noises may be discernible under unfavorable conditions such as high outside temperatures.

Owners are made aware of this in the Owner's Manual.



The oil level indicator is not M-specific but identical to those for the BMW 135i. At the 2,000 km / 1,200 mile running-in check, the engine oil, gearbox and differential oil is changed.

Refer to SI B00 01 10 dated May 2011

5.2. Driveshaft/Rear axle final drive



The driveshaft center bearing can be fitted facing two ways, as on the BMW E9x M3. It is important that the side marked "TOP" is fitted facing up towards the body.



As M differentials continue to be the subject of complaints in this regard, the following note is worth repeating:

For reasons inherent in differential function, the left and right differential output shafts and flanges to which the half-shafts are attached are different lengths inside the differential. As a result, when they are not under load, there is a noticeably different, design-related amount of vertical play in the two flanges. This does not impair the function and is not a justifiable reason for complaint. The larger amount of play on one side is present on all models with the M variable differential lock and may, dependent on the version and model, affect either the left or the right flange.

5.3. M chassis and suspension

On the standard E9x, the front spring strut is a parallel design and is held only by the clamping force of the mount.

The spring strut on the E82 M Coupe/E9x M3 has a taper at its lower end that locates firmly in the hub carrier.

When being fitted, the M spring strut is pulled into the lower taper by a special tool.



The fitting and removal procedure as described in the repair instructions must be followed.



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